TAXONOMIC STATUS OF CERTAIN CLAPPER RAILS OF SOUTHWESTERN UNITED STATES AND NORTHWESTERN MEXICO

Richard C. Banks and Roy E. Tomlinson

This study treats Clapper Rails (*Rallus longirostris*) distributed from the Colorado Valley of Arizona and California southward along the western Mexican mainland to Nayarit. These populations have been described as belonging to three races, i.e. *yumanensis* (Colorado Valley), *rhizophorae* (Sonora and northern Sinaloa), and *nayaritensis* (southern Sinaloa and Nayarit). Our aim was to assess the validity and range of these races and to present detailed descriptions of them. In assigning the races to *R. longirostris*, rather than to the King Rail (*R. elegans*), we follow the A.O.U. Check-list (1957). We use brackets to indicate present species assignment of various forms of rails.

The U.S. Bureau of Sport Fisheries and Wildlife (1966, 1973) considers *R. l. yumanensis* to be an endangered subspecies, and for this reason Tomlinson began field studies of the birds in 1968. In making comparative studies in the Colorado River Valley and northwestern Mexico (Tomlinson and Todd, 1973), Tomlinson became concerned as to the distinctness of *yumanensis* and *rhizophorae* of Sonora. After studies had shown that the population and range of the Colorado Valley birds were greater then previously believed, in June 1971 Tomlinson collected a small series of specimens of these rails. He also took specimens from along the west coast of Mexico, south to San Blas, Nayarit. Thirty-four adults and a chick were prepared as study skins and deposited in the National Museum of Natural History (USNM). This material was augmented by previously-taken specimens, so that a total of 58 presumed breeding birds was assembled (birds in freshly molted plumage were not available). Most of the analysis was based on the strictly comparable series of 1971.

TAXONOMIC HISTORY

On 25 August 1902, Herbert Brown collected a rail that he identified as *Rallus levipes* [= *Rallus longirostris levipes*] at Yuma, Arizona. This specimen was the basis of the A.O.U. Check-list (1910) statement that *R.* [*longirostris*] *levipes* was "Accidental in Arizona." Swarth (1914) and Cooke (1914) published the basic data associated with the specimen, which is now in the collection of the University of Arizona. No other Clapper Rails were obtained in the Colorado Valley until 1921, when L. M. Huey and May Canfield took the three specimens at Bard, Imperial County, California, on

which Dickey (1923) described *Rallus yumanensis*. In a footnote, Dickey mentioned Brown's earlier Yuma specimen and indicated that it "probably" was *yumanensis*. That seems to be the last mention in the literature of that specimen, which along with Brown's use of the name *Rallus levipes* is overlooked in the essentially complete synonymies of *yumanensis* in Ridgway and Friedmann (1941) and Hellmayr and Conover (1942).

To characterize *R. yumanensis*, Dickey (1923) compared his small series with the three geographically closest forms then known, i.e. *R.* [*longirostris*] *obsoletus* and *R.* [*longirostris*] *levipes* of the Pacific Coast of the Californias and *R. longirostris saturatus* of the coastal Gulf of Mexico. The Colorado Valley birds were considered most similar to *levipes*, although separable by minor color differences of the wing coverts, alula, and underparts and by a more slender tarsus and bill. Both size and color characters were used to distinguish *yumanensis* from the two other forms, but the tabulated size differences are not impressive. Part of Dickey's (1923:93) rationale for describing the new bird as a full species was the "unique ecological niche." He remarked: ". . . it is interesting to note that we here have a true Clapper Rail inhabiting for the first recorded time a purely fresh water environment."

Huey (*in* Bent, 1926:277) believed the center of distribution of Clapper Rails in the Colorado Valley was in the delta of the river, in Sonora and Baja California; he considered the apparently sporadic northerly occurrences as stragglers driven there by flooding in the delta. Grinnell (1928) placed the Yuma Clapper Rail on the hypothetical list of birds of Baja California. In California, Moffitt (1932) reported Clapper Rails at the Salton Sea, Imperial County, and suggested that they were *yumanensis*. Abbott (1940) first referred a specimen from the Salton Sea area to this race (although specimens in the Museum of Vertebrate Zoology had been taken there in 1937) and reported several nests from which eggs had been collected.

Rallus nayaritensis was described by McLellan (1927) from a single unsexed immature bird taken at San Blas, Nayarit. This "species" was distinguished from *yumanensis*, *levipes*, *obsoletus*, *saturatus*, and *R.* [*longirostris*] *pallidus* (from Yucatan) on the basis of color and proportional size differences, the latter unsupported by any figures other than measurements of the type. This form was known only from the type until Tomlinson took specimens for the present study (contra Dickerman, 1971: see beyond).

Van Rossem (1929) reviewed the status of the forms *obsoletus*, *levipes*, *yumanensis*, and *beldingi* (southern Baja California) and considered them all races of *R.* [*longirostris*] *obsoletus*, a treatment followed by the A.O.U. Check-list (1931). He gave the range of *yumanensis* as "along the Colorado River, from Laguna Dam south at least to Yuma," noting that the rails of the Colorado delta were probably also *yumanensis*.

Rallus obsoletus rhizophorae was named from the area between the ranges of *yumanensis* and *nayaritensis* by Dickey (1930), who at that time also placed the latter race in *R. obsoletus*. *Rhizophorae* was said to range from Guaymas, Sonora, south to the Sinaloa border, and was described as indistinguishable from *yumanensis* ventrally but "decidedly darker and very much grayer" on the upper parts and flanks. Two color characters of the underparts were given to differentiate *rhizophorae* from the unique type of *nayaritensis*. Dickey (1930) noted that an old record for Mazatlán, Sinaloa, generally until then referred to *R. elegans tenuirostris*, should probably be referred to *nayaritensis*; however, there is no specimen to support that record (Banks, in press).

Peters (1934) recognized as subspecies *yumanensis*, *rhizophorae*, and *nayaritensis*, placing them and other western populations (the "species" *R. obsoletus*) in *R. elegans*. Oberholser (1937), who distinguished *R. elegans* from *R. longirostris*, was the first to list the three forms under consideration as subspecies of *R. longirostris*. Oberholser's arrangement and the similar treatment by Ridgway and Friedmann (1941) have been accepted generally (Friedmann et al., 1950; A.O.U., 1957), although Hellmayr and Conover (1942) followed Peters (1934). More recently, the question of species limits has been reconsidered by several workers (see Dickerman, 1971; Mayr and Short, 1970), and proposals include the lumping of all into *R. longirostris*. Regardless of the species to which allocated, *yumanensis*, *rhizophorae*, and *nayaritensis* have all been recognized as valid taxa since their descriptions first appeared.

DISTRIBUTION OF THE RACES

The breeding range of *yumanensis* has been detailed by Tomlinson and Todd (1973), and the present study confirms that birds from the delta of the Colorado River and the southern end of the Salton Sea are indistinguishable from those of the Colorado Valley. Phillips et al. (1964) have previously suggested that the race might be migratory, and Tomlinson and Todd (1973) went so far as to suggest that this form may occur within the range of *rhizophorae* in winter.

We have been able to identify migrants of this race in other areas, including two specimens from Sinaloa previously referred to *nayaritensis* by Dickerman (1971). These are from Estero Mescales, 8 km (5 mi) north of Teacapán, and Castillo, 11 km east of Mazatlán (Fig. 1). These were taken on 13 March 1935 and 17 February 1934, respectively, months that are outside the breeding season of *yumanensis* and when that race is thought to be absent from the Colorado River Valley (Tomlinson and Todd, 1973). We have also identified as *yumanensis* a specimen taken by R. W. Dickerman at Laguna San Felipe,

FIG. 1. Localities represented by specimens of *Rallus l. rhizophorae* and *R. l. nayaritensis* used in this study and winter specimens (marked by X) identified as *R. l. yumanensis*. A map showing the breeding range of *yumanensis* may be found in Tomlinson and Todd (1973).

Puebla, Mexico, on 20 April 1962; Dickerman (1971) had referred it to the race *rhizophorae*. These three specimens, the identification of which is discussed beyond in detail, provide the first information on the wintering range of *yumanensis*.

Tomlinson and Todd (1973) also presented new data on the northern limits of *rhizophorae* in Sonora, citing specimens taken near Punta Sargento at the northern limits of mangroves. To the south, they referred specimens to this form taken at Topolobampo, Sinaloa, as did Dickerman (1971) with birds from Isla las Tunas, Sinaloa (Fig. 1). In 1971, Tomlinson collected two birds 55 km (35 mi) southwest of Culiacán, at Altata, Sinaloa. Beyond there exists a gap of approximately 140 miles (230 km), in which specimens or other records are lacking and where suitable habitat either does not exist or is scanty.

It would be convenient to consider Altata the southern limit of *rhizophorae*, except that the two specimens from there and the two from Topolobampo share color characters associated with the more southern *nayaritensis*. On the other hand, the specimens from Isla las Tunas agree, as Dickerman (1971) noted, with *rhizophorae*. Two interpretations of distributional limits may be suggested. One, the range of *rhizophorae* may reach its limits in the vicinity of Higuera de Zaragoza, Sinaloa, with a disjunct insular population on Isla las Tunas, or the area from Topolobampo to Altata could be considered one of intergradation of these races. Neither explanation is particularly satisfying, and additional specimens from this area will be needed to clarify the situation.

South of the hiatus in Sinaloa (Fig. 1) occurs *nayaritensis*, which is found in the vicinity of Mazatlán (Estero Sirena) and at San Blas, Nayarit (and presumably in suitable habitat between these points). Both *nayaritensis* and *rhizophorae* appear to be permanently resident in the areas from which breeding birds have been taken. At least we have seen no evidence of the birds being absent at any season from the area or present anywhere outside that area.

COLOR CHARACTERS

Extensive individual variation is a complicating factor in assessing Clapper Rail taxonomy. In addition, the coloration of most of the body plumage is subject to such wear, fading, and staining that detailed comparison of populations on that basis is of doubtful value. As a generality, *yumanensis* is pale and brown, *rhizophorae* is pale and grayer, and *nayaritensis* is darker and gray. Additionally, characters of the head and neck coloration exist that permit specimens of the three races to be distinguished.

In *yumanensis* the area of the lores is essentially concolorous with the

brownish-gray subocular stripe. In the few instances where the lores are darker, they are also browner. The postocular and auricular regions are pale brownish-gray. In *rhizophorae* the loral area is usually darker than the subocular stripe, and the basic color is gray rather than brown. The postocular-auricular regions are pale gray, with little or no trend toward brownish. The lores of *nayaritensis* are much darker than the gray subocular stripe, and the entire facial area is darker than in *rhizophorae*. The color of the facial area of *nayaritensis* may also extend slightly farther onto the throat than in the other forms; however, the apparent extent of color is easily influenced by the make of the skin.

The crown and nape of *yumanensis* are brown, slightly if at all darker than the hind neck. In *rhizophorae* the crown and the nape are grayish-brown, somewhat darker than the hind neck. In *nayaritensis* the crown and nape are dark brown and contrast markedly with color of the hind neck. The sides of the neck in *yumanensis* are essentially the same color as the throat and upper breast. In both *rhizophorae* and *nayaritensis* the rufescent color of the throat does not extend as far dorsally but is more restricted to the ventral surface. This character is noticeable only when specimens are viewed from the side, and it can be masked or distorted by the make of the skin.

The similarity of *yumanensis* to *R. longirostris levipes* of coastal southern California has been stressed by several authors (Dickey, 1923; van Rossem, 1929). Compared to *levipes*, *yumanensis* is paler on the breast and throat, has grayer flanks and duller wing coverts, and is more extensively brown on the crown. Both *rhizophorae* and *nayaritensis* are grayer than *levipes*.

WING TIP CHARACTERS

Fairly constant differences in the configuration of the wing tips and in the relative length of certain primaries offer means of separating most *yumanensis* from most *rhizophorae* and *nayaritensis*. In general, *yumanensis* has a more pointed wing than do the other forms, which have the wing more rounded. This is perhaps related to the migratory nature of *yumanensis*. In *rhizophorae* and *nayaritensis*, primaries $9 = 8 = 7 = 6$ (counting from outside), or 6 is slightly shorter than the others. In *yumanensis*, $9 = 8 = 7$, with 6 noticeably shorter. To quantify this relationship, we measured the distance from the tip of the longest primary to the tips of the sixth, as well as the fifth, primaries (Table 1, Fig. 2). These distances were considerably greater in *yumanensis* than in *rhizophorae* and *nayaritensis*, although there is some overlap. Individual measurements are plotted (Fig. 2) to show that the amount of overlap is not as great as suggested by the extreme range of values.

In *yumanensis*, primary 10 (outer) is approximately equal to primary 4 in length in all 11 females and in 11 of 17 males examined (the remaining

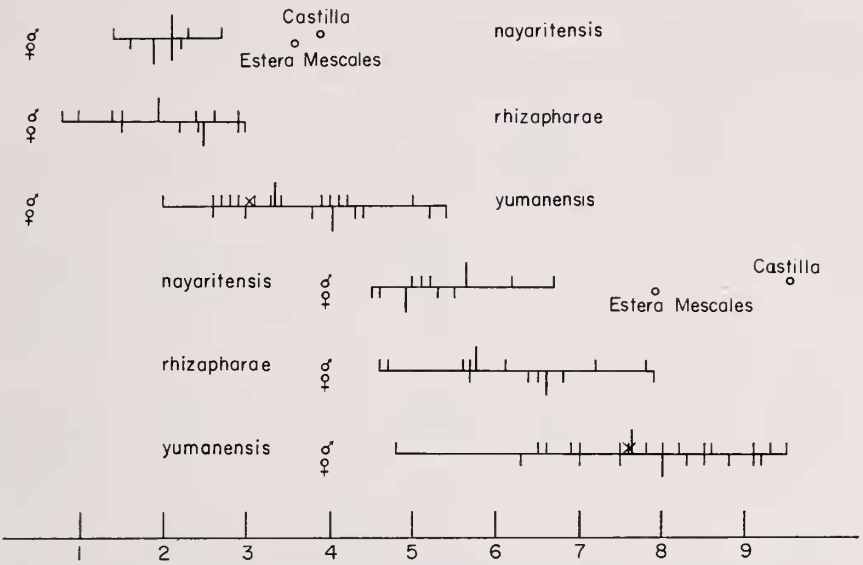

FIG. 2. Individual measurements (mm) from wing tip to end of sixth (upper set of figures) and fifth (lower set) primaries in *Rallus l. nayaritensis*, *R. l. rhizophorae*, and *R. l. yumanensis*. Two winter specimens identified as *yumanensis* in southern Sinaloa are marked by circles on the *nayaritensis* lines and another from Puebla is indicated by an X on the *yumanensis* lines.

males have primary 10 about equal to 3 in length or between 3 and 4). In *rhizophorae* and *nayaritensis*, primary 10 is relatively shorter, approximately equalling primary 3 (occasionally 2) in length, or at most being between 3 and 4. In only one male of the 28 specimens examined is primary 10 approximately equal to 4.

The Sinaloa and Puebla specimens previously mentioned as being identified as migrants of *yumanensis* were distinguished from other races primarily on the basis of wing characters. The measurements to the tips of primaries 6 and 5 of the two Sinaloa specimens are plotted (Fig. 2) with *nayaritensis*, with which they were geographically associated. Their values are far out of range of variation of the small sample of *nayaritensis* but well within the range for *yumanensis*; both have very pointed wing tips. Dickerman's (1971) identification of these birds as *nayaritensis* was based largely on color comparisons with the then unique type, which is an immature bird taken in October and of little value for such comparisons. The Puebla specimen, plotted with *yumanensis* (Fig. 2) has wingtip measurements that fall very close to the mean of measurements of that race; these are at or beyond the extremes recorded for *rhizophorae*, to which the bird was originally referred (Dicker-

TABLE 1
MEASUREMENTS (MM) FROM THE WING TIP TO THE TIPS OF PRIMARIES 6 AND 5 IN THREE CLAPPER RAIL POPULATIONS

	Males			Females		
	nayaritensis	*rhizophorae*	*yumanensis*	*nayaritensis*	*rhizophorae*	*yumanensis*
PRIMARY 6						
N	5	11	17	6	6	10
Range	1.4–2.7	0.8–2.9	2.0–5.0	1.6–2.2	1.5–3.0	2.6–5.4
Mean	2.1	1.9	3.3	1.9	2.5	4.0
S.D.	0.6	0.7	0.8	0.3	0.6	0.9
PRIMARY 5						
N	5	11	17	6	6	10
Range	5.0–6.7	4.6–7.8	4.8–9.5	4.5–5.5	5.7–7.9	6.3–9.2
Mean	5.6	5.7	7.6	4.9	6.6	8.0
S.D.	0.8	1.0	1.2	0.4	0.7	1.0

man, 1971). This specimen was taken at the same time and place as an example of *Rallus elegans tenuirostris* (Dickerman, 1971), the identification of which we have confirmed.

MENSURAL CHARACTERS

Oberholser (1937) and Ridgway and Friedmann (1941) presented measurements of the populations discussed here, but they had very few specimens at hand. Our measurements (Table 2) are of adult birds considered to be on the breeding grounds, with immatures and presumed migrants excluded. Although *rhizophorae* appears to average slightly larger than *yumanensis* or *nayaritensis* in most characters. the differences are slight and the overlap is nearly complete. Without resorting to statistical analysis, we would surmise that measurements do not provide a reliable criterion for separation of these forms, either inter se or from most other Clapper Rails of the western United States and Mexico. Rails of the northern population, *yumanensis*, average somewhat less in weight than those of the Mexican coastal areas, although again there is extensive overlap. Sample sizes of the Mexican forms are not large enough for firm conclusions.

SPECIMENS EXAMINED

R. l. yumanensis.—**Arizona**, YUMA CO.: Lower Topock Marsh, near Lost Lake (1, USNM; Topock Gorge, approx. 17 mi S. Needles, Calif. (3, USNM); Cibola Lake (2, USNM); Bill Williams Delta, 15 mi NE Parker Dam (1, 1 imm, USNM); Maritime Lake (1, USNM); 7 mi N Imperial Dam (1, USNM); Lake Moovalya, 7 mi N Headgate Rock

TABLE 2

MEASUREMENTS (MM) AND WEIGHTS (GM) OF THREE CLAPPER RAIL POPULATIONS

	Males			Females		
	nayaritensis	*rhizophorae*	*yumanensis*	*nayaritensis*	*rhizophorae*	*yumanensis*
WING CHORD						
N	6	11	17	6	6	11
Range	143.4–155.0	148.6–164.1	143.1–160.1	131.3–144.6	135.2–146.2	135.6–148.5
Mean	149.9	152.9	149.8	139.7	142.3	141.8
S.D.	3.8	4.6	4.0	5.4	3.9	3.6
TAIL LENGTH						
N	6	9	17	6	6	10
Range	62.6–66.1	61.5–72.8	60.3–69.0	56.7–64.1	55.8–66.2	57.8–62.6
Mean	62.8	65.2	64.2	60.1	61.7	59.9
S.D.	3.1	3.5	3.0	3.0	3.4	1.7
EXPOSED CULMEN						
N	6	11	16	5	6	10
Range	56.4–62.5	58.2–64.2	55.4–61.8	54.1–59.2	50.7–60.4	51.9–58.2
Mean	59.3	60.4	59.2	56.8	56.2	55.5
S.D.	2.2	1.9	1.8	2.1	3.4	2.1
TARSUS LENGTH						
N	5	10	15	6	5	9
Range	51.4–58.5	48.5–54.6	47.9–55.0	41.8–48.3	45.8–51.2	43.0–49.5
Mean	54.1	51.9	50.3	46.4	48.7	45.4
S.D.	2.7	2.0	2.3	2.3	2.1	2.0
MIDDLE TOE WITHOUT CLAW						
N	6	11	16	6	6	10
Range	49.9–53.8	49.4–58.4	50.3–54.6	42.3–50.5	45.8–51.7	46.5–51.1
Mean	52.0	53.2	52.7	47.8	49.0	49.0
S.D.	1.5	2.6	1.3	2.9	1.9	1.4
WEIGHT						
N	6	7	17	6	2	8
Range	251–305	261–336	222–307	210–310	239–268	192–268
Mean	280	297	256	267	253	219
S.D.	18.2	27.3	24.3	35.0	—	23.2

Dam (1, USNM); 3½ mi upriver from confluence of Gila and Colorado Rivers (1, USNM); confluence of Gila and Colorado Rivers (1, USNM); Yuma (1, 1 imm, UA). **California**, SAN BERNARDINO CO.: Headgate Rock Dam (1, USNM). IMPERIAL CO.: Palo Verde Lagoon (1, USNM); 3 mi S Cibola Lake (1, USNM); Alamo Canal, 1 mi from Morelos Dam (1, USNM); Bard (1, USNM); Alamo Duck Preserve, 8 mi NW Calipatria (7, MVZ). **Sonora**: Colorado River delta, 5 mi W Indiviso (4, USNM). **Sinaloa**: Castillo (1, MLO); Estero Mescales, 5 mi N Teacapán (1, MLO). **Puebla**: Laguna San Felipe (1, CU).

R. l. rhizophorae.—**Sonora**: Punta Sargento (1, UA); Punta Arenas (1, unsexed, UA); across from Punta Tortuga on Tiburón Island (1, UA); Long Point, 5 mi N Kino Bay (1, UA); Kino Bay estuary (2, UA); Estero Soldado, 6 mi W Guaymas (2, USNM); Tobari Bay near Paredón, 30 mi W Navojoa (2, USNM); Agiabampo (1, MLO). **Sinaloa**: Higuera de Zaragoza (3, WFVZ); Isla las Tunas (1, WFVZ; 3, MLO).

R. l. nayaritensis.—**Sinaloa**: Topolabampo (2, USNM); Altata (2, USNM); Estero Sirena, Mazatlán (3, USNM). **Nayarit**: 1 mi N San Blas (5 + 1 chick, USNM).

SUMMARY

Examination of 58 Clapper Rail specimens taken in the breeding season from the Colorado Valley and the west coast of mainland Mexico verifies the distinctness of the races *Rallus longirostris yumanensis*, *R. l. rhizophorae*, and *R. l. nayaritensis*. *Rallus l. yumanensis* is a relatively pale brown, pointed-winged, summer resident of freshwater marshes along the valley and delta of the Colorado River. Late winter specimens of *yumanensis* have been taken in freshwater and saltwater habitats in the Mexican states of Sinaloa and Puebla. Both *R. l. rhizophorae*, a pale grayish bird, and *R. l. nayaritensis*, a darker grayish form, are presumed year-round residents of the western Mexican mangrove swamps. Both have more rounded wings than *yumanensis*. The range of *rhizophorae* extends south along the coast from central Sonora to central Sinaloa, and that of *nayaritensis* from central Sinaloa to the vicinity of San Blas, Nayarit. Features of the range and characters of birds where the range of these two races approach each other are unclear.

ACKNOWLEDGMENTS

We thank M. Ralph Browning for technical assistance in this study, and Janet Cutler for preparing the illustrations. Kenneth C. Parkes and Robert W. Dickerman made helpful comments during the study, as did several other ornithologists working at or visiting the National Museum of Natural History, and Dickerman reviewed a draft of the manuscript. We thank curators at the Moore Laboratory of Ornithology (MLO), Western Foundation of Vertebrate Zoology (WFVZ), Museum of Vertebrate Zoology (MVZ), University of Arizona (UA), Cornell University (CU), and University of Minnesota, Bell Museum of Natural History, for the loan of specimens. Richard L. Todd assisted Tomlinson in field work. Collecting permits were issued by the Dirección General de la Fauna Silvestre of Mexico, the U.S. Bureau of Sport Fisheries and Wildlife, and the States of Arizona and California.

LITERATURE CITED

Abbott, C. G. 1940. Notes from the Salton Sea, California. Condor, 42:264–265.

American Ornithologists' Union. 1910. Check-list of North American birds. Third edition.

American Ornithologists' Union. 1931. Check-list of North American birds. Fourth edition.

American Ornithologists' Union. 1957. Check-list of North American birds. Fifth edition.

Banks, R. C. In press. Invalid record of a rail from Mazatlán, Mexico. Auk.

Bent, A. C. 1926. Life histories of North American marsh birds. U.S. Nat. Mus. Bull. 135.

Cooke, W. W. 1914. Distribution and migration of North American rails and their allies. Bull. U.S. Dept. Agric. no. 128.

Dickerman, R. W. 1971. Notes on various rails in Mexico. Wilson Bull., 83:49–56.

Dickey, D. R. 1923. Description of a new Clapper Rail from the Colorado River Valley. Auk, 40:90–94.

Dickey, D. R. 1930. A new Clapper Rail from Sonora. Trans. San Diego Soc. Nat. Hist., 6:235–236.

Friedmann, H., L. Griscom, and R. T. Moore. 1950. Distributional check-list of the birds of Mexico. Part 1. Pacific Coast Avifauna no. 29.

Grinnell, J. 1928. A distributional summation of the ornithology of Lower California. Univ. Calif. Publ. Zool., 32:1–300.

Hellmayr, C. E., and B. Conover. 1942. Catalogue of birds of the Americas. Part 1, no. 1. Zool. Ser., Field Mus. Nat. Hist., Vol. 13. pt. 1, no. 1.

Mayr, E., and L. L. Short. 1970. Species taxa of North American birds. Publ. Nuttall Orn. Club, no. 9.

McLellan, M. E. 1927. Notes on birds of Sinaloa and Nayarit, Mexico, in the fall of 1925. Proc. Calif. Acad. Sci., 4th ser., 16:1–51.

Moffitt, J. 1932. Clapper Rails occur on marshes of Salton Sea, California. Condor 34:137.

Oberholser, H. C. 1937. A revision of the Clapper Rails (*Rallus longirostris* Boddaert). Proc. U.S. Nat. Mus., 84:313–354.

Peters, J. L. 1934. Check-list of birds of the world. Vol. 2. Harvard Univ. Press, Cambridge, Mass.

Phillips, A., J. Marshall, and G. Monson. 1964. The birds of Arizona. Univ. Ariz. Press, Tucson.

Ridgway, R., and H. Friedmann. 1941. The birds of North and Middle America. U.S. Nat. Mus. Bull. 50, pt. 9.

Swarth, H. S. 1914. A distributional list of the birds of Arizona. Pacific Coast Avifauna no. 10.

Tomlinson, R. E., and R. L. Todd. 1973. Distribution of two western Clapper Rail races as determined by responses to taped calls. Condor, 75:177–183.

U.S. Bureau of Sport Fisheries and Wildlife. 1966. Rare and endangered fish and wildlife of the United States. Resource Publ. 34.

U.S. Bureau of Sport Fisheries and Wildlife. 1973. Threatened wildlife of the United States. Resource Publ. 114.

van Rossem, A. J. 1929. The status of some Pacific Coast Clapper Rails. Condor, 31: 213–215.

division of cooperative research, u.s. fish and wildlife service, washington, d.c. 20240, and patuxent wildlife research center, laurel, maryland 20810 (present address of ret: u.s. fish and wildlife service, p.o. box 1306, albuquerque, new mexico 87103). accepted 26 august 1974.